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(11)

EP 0 734 001 A2

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
25.09.1996 Bulletin 1996/39

(51) Int Cl.⁶: G07D 11/00

(21) Application number: 96301833.8

(22) Date of filing: 18.03.1996

(84) Designated Contracting States:
DE ES FR GB IT

(30) Priority: 21.03.1995 GB 9505691

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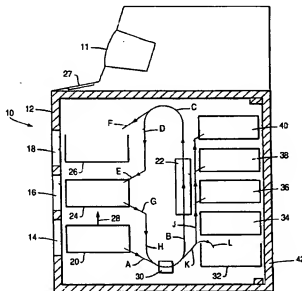
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(54) Automated depository

(57) In an automated depository system for banknotes or other valuable paper articles, a deposit cassette (20) which is loaded at a depositor's premises is placed in a depository terminal (10). The cassette contents are unloaded and passed through validation means (22), valid articles being passed to an escrow cassette (24) identical to the deposit cassette (20) and invalid articles being passed to a container (26). The depositor then has the choice of cancelling the transaction, when any invalid articles and the escrow cassette (24) can be removed. The empty deposit cassette (20) is then moved into the previous position of the escrow cassette (24). If the deposit continues, however, the depositor can, at the conclusion of the transaction, remove any invalid articles and the empty deposit cassette (20). If the articles are banknotes, the valid banknotes can be checked for ATM fitness and the fit notes sorted into cassettes (34-40) for respective banknote denominations.



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Description

This invention relates to automated depositories of the kind suitable for accepting deposits of valuable articles such as banknotes, cheques and the like.

It is known to provide automated teller machines which allow bank customers to withdraw banknotes, and it is also known to provide automated depositories by which bank customers can deposit banknotes.

European Patent Application No. 0 307 375 discloses a system which allows the deposit of banknotes or other valuable documents in a preloaded cassette which is inserted into a depository terminal on bank premises, emptied, and the contents counted.

European Patent Application No. 0 317 537 discloses a system in which deposited banknotes are validated and valid notes are sorted by denomination into containers for immediate reissue. In this system, banknotes are introduced by hand through a shutter, which may not allow a desired level of security for a depositor.

It is an object of the present invention to provide an automated depository terminal which is adapted to validate deposited articles while providing a high degree of security for the depositor.

According to the invention, there is provided an automated depository terminal including means to receive a deposit cassette containing articles of similar shape, and unloading means to unload the deposit cassette, characterized by validation means adapted to validate the articles unloaded from the deposit cassette; an escrow cassette identical to said deposit cassette; a container; loading means adapted to load validated articles into said escrow cassette and invalid articles into said container; means for providing a signal to cancel or continue with a deposit transaction; release means responsive to a signal to cancel a deposit transaction to permit the removal of said escrow cassette and of any contents of said container; and drive means adapted to move said deposit cassette into the previous position of said escrow cassette.

Preferably the release means is responsive to a signal to continue the deposit process by permitting the removal of any contents of the container and the removal of the deposit cassette.

Optionally the terminal further comprises a plurality of storage cassette and sorting means responsive to a signal to continue the deposit process by transferring validated articles from the escrow cassette into the storage cassettes. The articles may be banknotes, which are preferably sorted into the storage cassettes in accordance with their denomination. There may also be a fitness for reuse testing means, which removes unfit notes to a separate storage means. The fit notes in the storage cassettes may be made available for immediate reuse in a conventional automated teller machine.

It is a common feature that the articles are capable of being stacked in a cassette. The size of the articles in each cassette may vary, as with banknotes, provided

the articles are of the same shape.

The invention will now be described by way of example only with reference to the accompanying drawing which illustrates schematically in cross section a terminal according to the invention for use as a depository for banknotes, and is especially useful for businesses having substantial quantities of banknotes for deposit.

An automated depository terminal is illustrated at reference 10. The terminal 10 includes conventional self-service facilities such as a card reader, printer etc which are not shown for clarity, although a conventional display screen is shown at 11. The external face 12 of the terminal 10 has three apertures: a deposit aperture 14, and two return apertures 16, 18.

A deposit cassette 20 is loaded at the depositor's premises with banknotes of mixed denominations and is transported to the terminal 10 with the appropriate level of security. The deposit cassette 20 is loaded into the terminal through the deposit aperture 14.

The banknotes from deposit cassette 20 are removed automatically by conventional unloading means, not shown, and are passed along the arrowed path A,B through a validation testing means of conventional form, 22. Validated notes are passed along path C,D,E to an escrow cassette 24, which is identical to the deposit cassette 20, and invalid notes are passed along path C,F to a container 26.

The depositor is now presented on screen 11 with a choice of cancelling or continuing with the deposit, and signals the choice by conventional means such as by depressing a key or button (not shown) on a keyboard 27, or, if the screen 11 is a touchscreen, touching a relevant portion thereof. If the depositor chooses to cancel the deposit transaction, a signal is provided to enable a release means of conventional form, not shown, to permit the depositor to remove the escrow cassette through aperture 16, and to remove any contents of the container 26 through aperture 18. The depositor now has all articles initially deposited and a cassette for future use. Also, drive means (not shown) are operated to move the empty deposit cassette 20 into the previous position of the escrow cassette 24, as indicated by the arrow 28, so that an empty escrow cassette is available for the next depositor.

If however the depositor chooses to continue with the deposit transaction, a signal is provided to enable the release means (not shown) to operate to permit the removal of any invalid banknotes from the container 26, and the removal of the empty deposit cassette 20 for future use. Also, the amount of the valid notes may be automatically credited to the depositor's account. The escrow cassette 24 remains locked in position and the banknotes within it are passed along the path G,H into a currency fitness tester 30 of known type, which is operative at this time. Notes unfit for reuse are passed along the path K,L to an unfit currency container 32, and the remaining notes are passed along path K,J to a series of storage cassettes 34,36,38,40 into which the

notes are sorted by denomination by conventional sorting means, not shown.

The notes in the storage cassettes 34-40 are now available for reuse through normal ATM facilities. If the storage cassettes become overfull, they can be manually accessed through a security door 42 by authorized persons. The unfit notes can also be removed from the container 32.

It is an advantage of the terminal according to the invention that the depositor is automatically and immediately provided with a cassette for future use, which he can load with banknotes in the security of his own premises. Also, a cassette is provided for the depositor both if the deposit transaction is cancelled and if the deposit transaction is proceeded with. It is a further advantage that deposited banknotes can be made available for reuse.

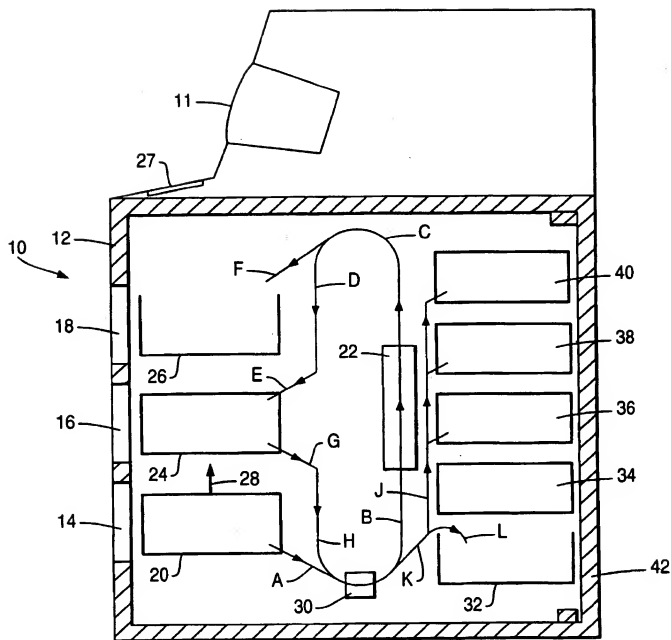
In a modification, the number of storage cassettes can be increased, for example by use of a carousel arrangement, which could for example have four vertical columns of four cassettes. In another modification, the terminal 10 may contain a conventional coin acceptance module (not shown) into which the depositor can deposit coins. In yet another modification, the articles may be other types of paper articles, such as personal cheques, travellers cheques, or the like, requiring validation by an appropriate process. Such articles would of course not be sorted and made available for reuse.

Claims

1. An automated depository terminal including means (14) to receive a deposit cassette (20) containing articles of similar shape, and unloading means to unload the deposit cassette (20), characterized by validation means (22) adapted to validate the articles unloaded from the deposit cassette; an escrow cassette (24) identical to said deposit cassette; a container (26); loading means adapted to load validated articles into said escrow cassette (24) and invalid articles into said container (26), means for providing a signal to cancel or continue with a deposit transaction; and release means responsive to a signal to cancel a deposit transaction to permit the removal of said escrow cassette (24) and of any contents of said container (26), and drive means adapted to move said deposit cassette (20) into the previous position of said escrow cassette (24).
2. A terminal according to claim 1, characterized in that the release means is responsive to a signal to continue the deposit process by permitting the removal of any contents of said container (26) and the removal of said deposit cassette (20).
3. A terminal according to claim 2, characterized by at least one storage cassette (34, 36, 38, 40), and

transfer means to transfer the contents of said escrow cassette (24) into the at least one storage cassette (34, 36, 38, 40).

4. A terminal according to claim 3, characterized by a plurality of storage cassettes (34, 36, 38, 40) and further comprising sorting means adapted to sort the articles from the escrow cassette (24) into the storage cassettes (34, 36, 38, 40) in accordance with a property of the articles.
5. A terminal according to claim 4, characterized in that the articles are banknotes and said property is their denomination.
6. A terminal according to claim 5, characterized by fitness testing means (30) adapted to test the banknotes for fitness for reuse and to transfer unit notes to a further container (32).
7. A terminal according to any one of claims 3 to 5, characterized in that said at least one storage cassette (34, 36, 38, 40) is manually accessible through a security door (42).



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EP 0 734 001 A3

(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
02.10.2002 Bulletin 2002/40

(51) Int Cl.7: **G07D 11/00**

(43) Date of publication A2:
25.09.1996 Bulletin 1996/39

(21) Application number: **96301833.8**(22) Date of filing: **18.03.1996**

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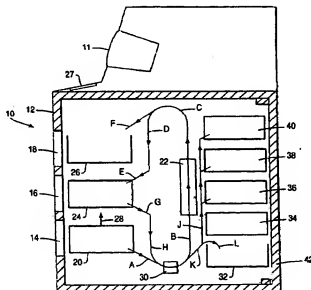
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EUROPEAN SEARCH REPORT

Application Number
EP 96 30 1833

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
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The present search report has been drawn up for all claims			
Place of search MUNICH		Date of completion of the search 7 August 2002	Examiner Bauer, R
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPIC FORM 103 (3.92) (PUB.01)

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